

ARTYUSHIN, L.F.; SHUBINA, G.Ye.; ANTONOV, S.M.; KIRILLOV, N.I.;  
LEVITAN, A.Yu.; MIKOSHA, V.V.; FLUZHIKOV, B.F.; IOFIS,  
Ye.A., kand. tekhn.nauk, red.; POMIN, A.A., red.; GORINA,  
V.A., tekhn. red.

[Color photography] TSvetanaiia fotografia. Izd.2., ispr. 1  
dop. Pod red. E.A.Iofisa. Moskva, Iskusstvo, 1961. 228 p.  
(Biblioteka fotoliubitelia, no.13) (MIRA 16:5)  
(Color photography)

IOFIS, Ye., kand.tekhn.nauk

Processing of positive prints is a creative process! Sov.foto 21  
no.5:40 My '61. (MIRA 14:5)

(Photography--Printing processes)

BARINOV, L.V.; GEODAKOV, A.I.; GRINEVICH, G.Ya.; IOFIS, Ya.A., kand.  
tekhn. nauk; KRIMERMAN, P.M.; LAPAURI, A.A.; MINENKOV, I.B.;  
PANFILOV, N.D.; PELL', V.G., kand. tekhn. nauk; PERTSIK, A.G.;  
POLYANSKIY, N.N.; POPOV, A.N.; SIMONOV, A.G.; SUROV, S.G.;  
SHASHLOV, B.A.; TELESHEV, A.N., red.; MALEK, Z.N., tekhn. red.

[Manual for the amateur-photographer] Spravochnik fotoliubitelia.  
Pod obshchei red. E.A.Iofisa i V.G.Pellia. Moskva, Iskusstvo,  
1961. 530 p. (MIRA 15:7)

(Photography--Handbooks, manuals, etc.)

BUNIMOVICH, David Zakharovich; IOFIS, Ye.A., kand. tekhn. nauk, red.;  
FOMIN, A.A., red.; MALEK, Z.N., tekhn. red.

[Selecting a camera] Vybór fotoapparata. Pod red. E.A. Iofisa.  
Moskva, Izd-vo "Iskusstvo," 1962. 127 p. (Biblioteka foto-  
liubitelia, no.28) (MIRA 16:2)

(Cameras)

DORENSKIY, Leonid Mikhaylovich; IOFIS, Ye.A., kand.tekhn.nauk,red.;  
FOMIN, A.A., red.; PEREGUDOVA, M.T., tekhn. red.

[Dynamism of the photographic image]Dinamichnost' fotokadra.  
Pod red. E.A.Iofisa. Moskva, Izd-vo "Iskusstvo," 1962. 143 p.  
illus. (Biblioteka fotoliubitelia, no.27) (MIRA 15:9)  
(Photography of sports)

YAKOVLEV, Mikhail Fedorovich; IOFIS, Ye.A., kand. tekhn. nauk, red.;  
FOMIN, A.A., red.; MALEK, Z.N., tekhn. red.

[Repair of cameras] Remont fotoapparatov. Pod red. E.A. Iofisa.  
Moskva, Iskusstvo, 1962. 191 p. (Biblioteka fotoliubitelia,  
no.29) (MIRA 15:10)

(Cameras—Maintenance and repair)

BUNIMOVICH, David Zakharovich; IOFIS, Ye.A., (transl.) tekhn. nauk, red.;  
ZHEFDETSKAYA, N., red.; PEREGUDOVA, M., tekhn. red.

[Enlargement of photographs] Uvelichenie fotosninkov. Pod  
red. E.A.Iofisa. Moskva, Izd-vo "Iskusstvo," 1963. 85 p.  
(Bibliotekha fotoliubitelia, no.32) (MIRA 16:8)  
(Photography--Enlarging)

IOFIS, Yevsey Abramovich; ZHERDETSKAYA, N.N., red.; PODSHEBYAKIN,  
I.N., tekhn. red.; SHEBALINA, G.Ya., tekhn. red.

[Photography manual for school students] Fotografiiia dlia  
shkol'nika. 2. izd., perer. i dop. Moskva, Iskustvo,  
1963. 140 p. (MIRA 16:9)  
(Photography--Handbooks, manuals, etc.)



BARINOV, L.V.; GEODAKOV, A.I.; GRINEVICH, G.Ya.; IOFIS, Ye.A.,  
kand. tekhn. nauk; KRIMERMAN, P.M.; LAPAURI, A.A.;  
MINENKOV, I.B.; PANFILOV, N.D.; PELL', V.G., kand.  
tekhn. nauk; PERTTSIK, A.G.; POLYANSKIY, N.N.; POPOV,  
N.A.; SIMONOV, A.G.; SUROV, S.G.; SHASHLOV, B.A.;  
TELESHEV, A.N., red.

[Handbook for the amateur photographer] Spravochnik fo-  
toliubitelia. Izd.2., ispr. i dop. Moskva, Iskusstvo.  
1964. 472 p. (MIRA 18:1)

KARTUZHANSKIY, Aleksandr L'vovich; IOFIS, Ye.A., kand. tekhn.  
nauk, red.; BOGATOVA, V.S., red.

[Physical foundation of the photographic processes on  
silver halide salts] Fizicheskie osnovy fotograficheskogo  
protsessa na galogenidoserebrianykh soliakh. Moskva,  
Iskusstvo, 1965. 84 p. (MIRA 18:5)

SIMONOV, Aleksandr Grigor'yevich; IOFIS Ye.A., kand. tekhn. nauk,  
red.; ZHERDETSKAYA, N.N., red.

[Photography] Fotos'emka. Moskva, Iskusstvo, 1965. 158 p.  
(MIRA 19:1)

1050, R.I.

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics.

F-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 9844

Author : Kleyner, G.I., Ioffo, R.I.

Inst : - RIZHSKIY ZAVOD MEDITSINSKIKH PREPARATOV.

Title : Conditions for Obtaining High Activity of Strain "New hybrid" (Preliminary Communication).

Orig Pub : Antibiotiki, 1956, 1, No 6, 14-18

Abstract : The productivity of a highly active strain "new hybrid" was studied, which forms, on Moyer and Kokkhill medium with phenylacetamide (0.1%) in flasks on rockers, cultivations up to 4000 penicillin units per ml under conditions of experimental fermentors. Aeration of the cultures had the determining effect on fungus productivity. Supply of air oxygen to the culture depended basically on the intensity of mixing. In mixing air at a speed of 320 rpm the medium did not show the presence of dissolved oxygen; at the end of fermentation the medium contained

Card 1/2

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics.

F-2

Abs Jour ; Ref Zhur - Biol., No 3, 1958, 9844

80% of the predecessor (substrate ?). In mixing air at a speed of 420 rpm the oxygen concentration consisted of 20-25% during 36 hours of cultivation; by the end of fermentation the predecessor (substrate ?) was completely utilized. Under conditions of lower aeration (1 volume of air to 1 volume of medium per minute) in mixing with a speed of 320 rpm the activity comprised 2238 units per ml. Under conditions of the highest aeration studied (1 volume of air to 1 volume of medium per minute) in mixing with a speed of 420 rpm, the maximal activity obtained was 4225 units per ml after 132 hours of fermentation.

Card 2/2

APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000618630008-9"

KLEYMER, G.I.; IOFO, R.I.

Stimulation of penicillin formation in a strain of *Penicillium chrysogenum* by compounds of bivalent sulfur. Antibiotiki 4  
no.4:24-29 J1-Ag '59. (MIRA 12:11)

1. Rishskiy zavod meditsinskikh preparatov.  
(PENICILLIUM pharmacol)  
(SULFUR pharmacol)  
(PENICILLIN metab)

LEVITOV, M. M.; KLEYNER, G. I.; GOTOVTSEVA, V. A.; ZAVILEYSKAYA, G. F.; IONO, R. I.;  
KBAPOVSKAYA, K. I.; YUDINA, O. D.

"Penicillinacylase production by escherichia coli in relation to cultivation conditions."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

All-Union Sci Res Inst of Antibiotics, Moscow, & Plant for Production of Medicinal Products, Riga.

IOFO, R.I.; KLEYNER, G.I.

Effect of fats on penicillin production. Antibiotiki 8 no.8:  
684-689 Ag '63. (MIRA 17:5)

1. Rizhskiy zavod meditsinskikh preparatov.

IOG, I. M.

USSR/Engineering  
Construction Industry  
BIBliography

Jun 48

"Soviet Technical Periodicals" 2 pp

"Stroi Prom No 6

Reviews technical periodicals, among other: N. K. Chayka's "Production  
of Tower Cranes for Residential Constructions," I. M. Iog's  
"Mechanization of Limestone Unloading," D. S. Ioffe's "Mobile-  
Suspension Cableway," etc.

PA 43/49T42



FREYLIKH, Grigoriy Zalmanovich; IOG, Nikolay Georgiyevich;  
SERKO, G.S., red.

[Channel-dredging fleet] Dnougubitel'nyi flot. Mo-  
skva, Transport, 1964. 298 p. (MIRA 18:1)

IOG, V.I., insh.; BEREZOVICH, I.N., tekhnik

Conversion of the electrical system of a machine for disassembling  
and assembling molds in large-panel housing construction  
enterprises. Prom.energ. 18 no.1:17-19 Ja '63.

(MIRA 16:4)

(Precast concrete construction)

BUYANOV, V.T.; SHKOLYARENKO, N.D.; IOG, V.I.; Berezovich, I.N.

Concerning V.I. Iog and I.N. Berezovich's article "Change in the electrical network of a machine for disassembling and assembling precast forms in large-panel construction of dwellings." Prom. energ. 19 no. 6:43-45 Je'64 (MIRA 17:7)

Ioga, B.Z.

Category : USSR/Atomic and Molecular Physics - Statistical Physics. D-3  
Thermodynamics.

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6269

Author : Neameyanov, A.N., Ioga, B.Z., Strel'nikov, A.A., Firsov, V.G.  
Title : Measurement of the Pressure of Saturated Vapor of Solid  
Alloys by the Radioactive Tracer Method.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 6, 1250-1257

Abstract : No abstract

Card : 1/1

USSR/General Problems of Pathology. Pathophysiology of the Process of Infection U-2

"APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000618630008-9"

Abs Jour : Ref Zhur - Biol., No 7, 1958, No 32404

Author : Iognevskiy Irzhi  
Inst : Not Given  
Title : Interrelation of Immunity and Susceptibility During Experimental Staphylococcal Infection.

Orig Pub : Ochkhosl. med. obzor., 1956, 2, No 3, 232-247

Abstract : Normal rabbits and those immunized with 5 weekly injections of staphylococcal endotoxin and earlier (for 2-3 or 4-6 months) inoculations of a small dose (1/20 mld) of staphylococcus were infected with a strain of staphylococcus (S) Wood-46 which produces many  $\alpha$ -toxins, or with the less toxic strain 217. In the immunized and infected rabbits, distinct phenomena were noted of a similar degree of immunity in both groups, and of increased sensitivity and reaction in subsequent infections. In comparison with control animals, the

Card : 1/2

~~IOGENSEN, Aleksandr Aleksandrovich~~; LYUSTIBERO, V.P., inzh., ved.  
red.; SOKOLOV, I.D., inzh., red.; SOROKINA, T.M., tekhn.red.

[800 timer calibrator]Sekundomer-kalibrator tipa 800. Moskva,  
Filial Vses.in-ta nauchn. i tekhn.informatsii, 1958. 17 p.  
(Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt.  
Tema 31. No.P-58-34/6) (MIRA 16:3)  
(Automatic timers)

9.6000  
9.7500

S/120/62/000/006/014/029  
E140/E433

AUTHORS: Gordiyenko, A.I., Iogansen, A.A.

TITLE: Capacitive time-interval converters

PERIODICAL: Priory i tekhnika eksperimenta, no.6, 1962, 77-81

TEXT: A precision time-interval converter is described in which a common charging circuit is used to charge capacitances of different values to identical voltages. The circuit was used to reduce the minimum time interval measurable on a counter type time interval meter from 10  $\mu$ s to 7.8 ns. There are 2 figures. ✓B

SUBMITTED: February 13, 1962

Card 1/1

CA

Calculation of the elasticity coefficients of the carbon tetrachloride molecule. A. V. Ignashenko and V. M. Tatarovskii (U.S.S.R. Ministry of Atomic Energy). *Zh. Fiz. Khim.* 34, 301-302 (1960).—Splitting of Raman lines of  $CCl_4$  due to the presence of  $Cl$  isotopes is calcd. by Ryzhnikov's method (*C.A.* 34, 6082) with consts. differing from Stepanov's (*C.A.* 40, 15). The results are in good agreement with the expts. of Langseth (*C.A.* 26, 1180), although Rank and Van Horn (*C.I.* 40, 1044) could not reproduce some of L.'s results. J. J. Bikerman.

C.A.

Saturated vapor pressure of higher n-alkanes  $C_{11}$ - $C_{40}$ .  
M. D. Tilcheev and A. V. Logunov, *Zhur. Fiz. Khim.*  
24, 770-7 (1950).—The b.p.s. at 0.01, 0.1, 1, 5, 10, 101, and  
760 mm. Hg pressure were calcd. for the n-alkanes contg.  
11-40 C atoms from the equation  $\log P = A - [B/(C + 1)]$ , where  $P$  is pressure in mm. Hg,  $t$  = temp., and  
 $A$ ,  $B$ , and  $C$  are consts. that depend on the no. of C atoms  
in the mol. Callan had a calcd. b.p. at 1 mm. of  $306^\circ$ , where-  
as Whitmore, et al. (C.A. 40, 1130) found an expl. value of  
 $305^\circ$ . Callan had a calcd. b.p. at 11 mm. of  $308.6^\circ$ , whereas  
Young (C.A. 23, 3302) found the figure to be  $311^\circ$  by expt.  
Paul W. Howerton



IOGANSSEN, A. V.

PA 196T13

USSR/Chemistry - Hydrocarbons

Nov 51

"Saturated Vapor Pressure of  $C_9-C_{24}$  2-methyl-  
alkanes," M. D. Filichev, A. V. Iogansen, Moscow

"Zhur Fiz Khim" Vol XIV, No 11, pp 1295-1299

By graphic method found dependence of difference  
between normal bp of n-alkanes and corresponding  
2-methylalkanes on number of C atoms. Difference  
varies nonuniformly for  $C_9-C_{17}$  alkanes of both  
homologous series, uniformly for higher alkanes.  
On this basis calcd normal bp for  $C_{19}-C_{24}$  2-methyl-  
alkanes. Found dependence of ratio of bp (°K) at  
different pressures of individual 2-methylalkanes

196T13

USSR/Chemistry - Hydrocarbons (Contd)

Nov 51

on no of C atoms (this is applicable to other  
homologous series). Starting from this dependence  
and from calcd values of normal bp, it was pos-  
sible for the 1st time to det dependence of satd  
vapor pressure on temp  $C_9-C_{24}$  2-methylalkanes.

(C447 no 17:8442 J3)

196T13

USSR/Chemistry - Fuels

21 Dec 51

"Refractive Indices of Higher n-Paraffins," A. V. Yoganzen

"Dok Ak Nauk SSSR" Vol LXXI, No 6, pp 1077-1079

The refractive indices of the normal hydrocarbons from  $C_{13}$  to  $C_{20}$  were carefully measured at 20, 30, and 40°C at the following wave lengths: 589.6 millimicrons (Na D line), 656.3 millimicrons (H $\alpha$  C line), 486.1 millimicrons (H $\beta$  F line), 546.1 millimicrons (Hg e line), 435.8 millimicrons (Hg g line). All figures were detd down to the 5th place and a graph drawn

219715

showing the straight line relationship between the refractive index and  $1/N$ , where N is the number of carbon atoms in the hydrocarbon.

219715

YOGANSEN, A.V

1. IOOLANSEN, A.V.
2. USSR (600)
4. Spectrophotometer
7. Spectrophotometric measurements. Dokl. AN SSSR 87 no. 4. 1952.

Discusses in a general form the effect of various degrees of monochromatism of emission on measurements of absorption spectra. Derives formulas for computation of discussed effect. Presented by Acad G. S. Landsberg 4 Oct 52.

256T108

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

IOGANSEN, A.V.

①  
Spectrophotometric methods for determining the intensity, form, and width of infrared absorption bands of liquids. A. V. Iogansen. Doklady Akad. Nauk S.S.S.R. 92, 919 (1953) Engl. translation issued as U.S. Atomic Energy Comm. NSP-tr-215, 4 pp. (1954); cf. Doklady Akad. Nauk S.S.S.R. 87, 527 (1953).—Methods suitable for the practical detn. of the true spectral characteristics of a substance from the observed data are presented. The characteristics treated were intensity of the max., form and width of the band, and its integrated intensity.  
Harry Letaw, Jr.

*[Handwritten signature]*  
10/16/54

IOGANSEN, A. V.

"Methods of Calculating the Effect of the Resolving Capacity of a Monochromator and Some Results of Their Application." Cand Chem Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, 19 Nov 54. (VM, 9 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No.521, 2 Jun 55

USSR/ Chemistry - Spectroscopy

Card 1/1      Pub. 43 - 37/62

Authors      : Zimina, K. I.; Ioganson, A. V.; and Siryuk, A. G.

Title      : Application of infrared spectroscopy to the study of "petroleum products

Periodical   : Izv. AN SSSR. Ser. fiz. 18/6, page 707, Nov-Dec 1954

Abstract      : Experiments were conducted to determine the applicability of the group structural analysis according to infrared absorption spectra to the study of gasoline, kerosenes, oils and tarry substances (petroleum products). It was determined that infrared spectroscopy can find broad application in the analysis of petroleum in a wide range of molecular weights. Spectroscopy offers greater perspectives in the study of simple hydrocarbon mixtures than the quantitative analysis method.

Institution : Central Institute of Aviation Fuels and Lubricants

Submitted   : .....

USSE/ Physics - Spectral analysis

Card 1/1 Pub. 43 - 38/62

Authors : Iogansen, A. V.

Title : ~~Study of the oscillation spectrum of the vinyl group and its quantitative determination in hydrocarbon mixtures~~  
: Study of the oscillation spectrum of the vinyl group and its quantitative determination in hydrocarbon mixtures

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 708-709, Nov-Dec 1954

Abstract : The infrared absorption spectra were investigated for 1-alkenes, ranging from  $C_5$  to  $C_{11}$  and  $C_{16}$ . By calculating the resolving power of the monochromator it became possible to determine the intensity, form and width of the absorption bands for the hydrocarbons tested. The method of infrared absorption spectra is considered highly suitable also for other products, especially for high molecular ones (synthetic rubber, etc.). Two references: 1 USA and 1 USSR (1949-1953). Graph.

Institution : Central Institute of Aviation Fuels and Lubricants

Submitted : .....





ПРИКЛАДНОЕ

24(7)

13

PHASE I BOOK EXPLOITATION

BOV/1365

L'viv. Universitet

Materialy I Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'viv] Izd-vo L'vivskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Iti: Fizicheskii sbornik, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Baranyuk, T.V.; Editorial Board: Landberg, G.S., Academician (Resp. Ed., Deceased), Reporent, B.S., Doctor of Physical and Mathematical Sciences, Pabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Pabelinskiy, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Milyutinuk, V.S., Candidate of Physical and Mathematical Sciences, and Olsbergman, A. Ye., Candidate of Physical and Mathematical Sciences.

Card 7/44

Ivanov, A.V. Structural-group Analysis of Saturated Petroleum Products by Means of Infrared Absorption Spectra. Determination of CH<sub>3</sub>-groups, Aliphatic CH<sub>2</sub>-groups and Long Chains, (CH<sub>2</sub>)<sub>n</sub>

Tumeran, L.A. New Optical Methods in Mass Spectroscopy

847

Kovner, M.A., A.M. Bogomolov. The Structure and Vibrational Spectra of Some Aromatic Hydrocarbons

81

Kamenetskiy, V.D., and S.M. Yavorakiy. Method for the Calculation of Absorption Spectra of Organic Molecules

84

Ivanov, A.V. Normal-vibration Frequencies and the Anharmonicity Constants of Acetylene and Deuterioacetylene Molecules

88

Kulikov, L.D. and M. Rubin. Polarization Method for the Measuring of Optical Constants of Metals in the Infrared Range

93

Kulovskiy, L.D. Use of a Resonator Model With Viscous Friction for the Representation of Optical Characteristics of Absorbing Media in the Infrared Range

95

Card 7/60

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5(3)

SOV/52-25-3-15/62

AUTHORS: Zelenskaya, L. G., Iogansen, A. V., Kurkand, G. A.

TITLE: Quantitative Determinations of the Products of Caprolactam-production on the Infra-red Spectrometer IKS-12 (Kolichestvennyye opredeleniya produktov proizvodstva kaprolaktama na infrakrasnom spektrometre IKS-12)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 299 - 300 (USSR)

ABSTRACT: A lecture was held on this problem at the XII Vsesoyuznoye soveshchaniye po spektroskopii (XII All-Union Conference of Spectroscopy) in Moscow in November 1958. For analysing several products of the caprolactam-production infra-red spectroscopy was used in the case under discussion (Table). The investigations were carried out on the spectrometer IKS-12 which had an amplifier assembly FEOU-18 and an electronic recording potentiometer EPP-09. The tests were carried out according to the method of measuring "in point" (Ref 1); thus, the value

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$\lg \frac{I_0}{I}$  could be reproduced with an accuracy of  $\pm 1\%$

Quantitative Determinations of the Products of  
Caprolactam-production on the Infra-red Spectrometer IKS-12

SCV/52-25-3-15/62

and the measurements could be accelerated. The concentration of the components was graphically determined from calibration curves. For determining cyclohexane (I) and methylcyclopentane (II) the method of a metallic interval standard, the method of a metallic wire screen (Ref 2) was used. Thus the content of the basic component (I) could be determined up to 0.4% relatively precisely as well as small amounts of the slightly absorbable component (II) (up to 0.15% precisely). Cuvettes of NaCl (liquids) and cuvettes protected by phthoroplast (for  $\text{NO}_2$  and aggressive components) were used for the tests. Duration of the analysis: 15 minutes to 1.5 hours. There are 1 table and 2 references.

ASSOCIATION:

Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza (State Scientific Research and Planning Institute for Nitrogen Industry and Products of Organic Synthesis )

Card 2/2

5(4)

SOV/32-25-3-17/62

AUTHOR:

Iogansen, A. V.

TITLE:

The Determination of Open Small Chains -  $(CH_2)_n$  - of Various Lengths From Infra-red Absorption Spectra (Opredeleniye otkrytykh tsepochek -  $(CH_2)_n$  - razlichnoy dliny po infrakrasnym spektram pogloshcheniya)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 302-303 (USSR)

ABSTRACT:

A lecture was given on this investigation at the XII Vsesoyuznoye soveshchaniye po spektroskopii (Twelfth All Union Conference of Spectroscopy) in Moscow in November 1958. In accordance with the outer deformation oscillations of the C-H bindings, characteristic spectral bands can be observed in infra-red absorption spectra of saturated hydrocarbons with small -  $(CH_2)_n$  - chains in the range of from  $720-780\text{ cm}^{-1}$ . The intensity and frequency of these spectral bands depend on the length of the non-ramified chains -  $(CH_2)_n$  - in the hydrocarbon molecule and on the structure of the end radical. It was found that the chain -  $(CH_2)_n$  - can be subdivided: I. -  $(n > 6)$ , II. -  $(n=4-5)$ , III. -  $(n=3)$ ,

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SOV/32-25-3-17/62

The Determination of Open Small Chains -  $(CH_2)_n$  - of Various Lengths From Infra-red Absorption Spectra

IV. -  $(n=2)$ , and V. -  $(n=1)$ . A certain absorption band of a certain frequency, intensity, and length corresponds to each of these groups. Thus saturated hydrocarbon of unknown structure can be considered a five-component mixture of the structural groups I. - V. and the content of each of these groups can be determined from the infra-red spectrum. The spectra of 25 individual hydrocarbons were measured and the structural groups  $R-(CH_2)_n-CH_3$  were determined from a system of equations. The method was tested on 30 individual hydrocarbons and artificial mixtures and thus the applicability of this kind of determination and its accuracy were proved. There are 1 table and 1 Soviet reference.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanoy promyshlennosti (All-Union Scientific Research Institute of Petroleum Industry)

Card 2/2

5(2)

SOV/32-25-7-12/50

AUTHORS: Tarasov, A. I., Kudryavtseva, N. A., Ioganson, A. V., Lulova, N. I.

TITLE: Automatic Analysis of Flowing Gases by Means of Chromatograph  
KhPA-1 (Avtomaticheskii analiz gazov v potoke na  
khromatografe KhPA-1)

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, pp 803-805 (USSR)

ABSTRACT: In collaboration with the Collective V. R. Anders, P. A. Frolovskiy, V. F. Remnev, M. S. Slobodkin and Ye. S. Bulakh of the SKB of petroleum industry, an automatic chromatograph - gas analyzer KhPA-1 was designed (Fig 1) for the purpose of controlling the composition of gas flows in technological processes of the petroleum refining industry and the petroleum chemical industry. The device provides a thermostating of the feeding analyzer (at temperatures above room temperature), and the application of a detector of the heat conductivity. The separation columns can be exchanged according to the conditions of the analysis. A new column filling was used, composed of tripolite (from Zikeyev quarry) with an addition of paraffin-naphthene oil and soda. A separation of the hydrocarbons  $C_1-C_4$  occurs after 16 - 17 minutes and that of the

Card 1/3

1

Automatic Analysis of Flowing Gases by Means of  
Chromatograph KhPA-1

SOV/32-25-7-12/50

hydrocarbons  $C_1-C_5$  after about 15 - 50 minutes in columns 4 - 6 m long and 6 mm in diameter, filled with the above mentioned substance, at temperatures between 40 - 200° and a flowing rate of the developing gas (nitrogen) of 2 - 8 l/hour. Ethane-ethylene cannot be separated. Sensitivity coefficients were determined and applied for the computation of the gas composition. The results of the analysis obtained by means of the appliance KhPA-1 were compared to those of the chromatograph Fraktovap (of the firm Carlo Erbe, Italy), (Table 1). The reproducibility of the results achieved in the analysis of industrial gases was also determined (Table 2). At present a test appliance KhPA-1 is being installed in the gas fractionating plant of the Novo-Ufimskiy neftepererabatyvayushchiy zavod (Novo-Ufimskiy Petroleum Refinery) for the automatic analysis of butane-butane fractions. The production of a test series of automatic industrial chromatographs KhPA-1 will be carried out in Moskovskiy zavod KIP (Moscow Works KIP) in 1959. There are 2 figures, 2 tables, and 2 references, 1 of which is Soviet.

Card 2/3

Automatic Analysis of Flowing Gases by Means of  
Chromatograph KhPA-1

80V/32-25-7-12/50

ASSOCIATION: Vsesoyuznyy institut po pererabotke nefi i gaza i  
polucheniyu iskusstvennogo zhidkogo topliva  
(All-Union Institute for the Refining of Petroleum and Gas,  
and for the Production of Artificial Liquid Fuels)

Card 3/3



TARASOV, Aleksey Issarionovich. Prinimali uchastiy: KUZ'MINA, A.V.;  
ZIMINA, K.I.; POLYAKOVA, A.A.; IOGANSSEN, A.V.; PROLOVSKIY, P.A.;  
LULOVA, N.I.; L'VOVA, L.A., vedushchiy red.; MUKHINA, N.A.,  
tekhn.red.

[Gases obtained in petroleum refining and methods of their  
analysis] Gazy neftepererabotki i metody ikh analiza. Moskva,  
Gos.nauchno-tekhn.isd-vo نفت. i gorno-toplivnoi lit-ry, 1960.  
222 p. (MIRA 13:2)

(Petroleum--Refining)

(Gases--Analysis)

AUTHOR: Iogansen, A.V.

SOV/51-8-1-27/40

TITLE: Discussion of Some of the Papers Presented at the Conference on the Theory of Spectroscopic Instruments

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 1, p 126 (USSR)

ABSTRACT: In 1953 the author (Iogansen) measured the apparatus functions of an IKS-11 spectrometer in the region of  $1.014 \mu$ , using a photocell as a receiver and limiting the slit to 0.1-0.2 of its total height. With a LiF prism the following apparatus-function half-widths,  $\Delta\nu_{\text{eff}}$ , were obtained:  $32 \mu$  (slit width  $s = 20 \mu$ , slit height  $h = 4 \text{ mm}$ ),  $39 \mu$  ( $s = 30 \mu$ ,  $h = 4 \text{ mm}$ ),  $47 \mu$  ( $s = 20 \mu$ ,  $h = 30 \text{ mm}$ ),  $53 \mu$  ( $s = 30 \mu$ ,  $h = 30 \text{ mm}$ ). Since in the region beyond  $3 \mu$  there is still no reliable method of measuring  $\Delta\nu_{\text{eff}}$ , it is desirable to determine  $\Delta\nu_{\text{eff}}$  in the near infrared region and to extend these determinations to further wavelengths and other prisms with appropriate corrections for diffraction and the slit curvature. It would be useful to establish standard bands for determination of  $\Delta\nu_{\text{eff}}$  in various regions of the spectrum. For this purpose it would be necessary to measure absorption band parameters using instruments with high resolving power. Note. This is a complete translation including 1 table.

Card 1/1

ZAKHARKIN, L.I.; KORNEVA, V.V.; IOGENSEN, A.V.

Admixture of hydrogen chloride and acetic acid to isomeric 1, 5, 9-cyclododecatrienes. Dokl.AN SSSR 138 no.2:373-376 My '61.  
(MIRA 14:5)

1. Institut elementoorganicheskoy khimii Akademii nauk SSSR.  
Predstavleno akademikom M.I.Kabachnikom.  
(Hydrogen chloride) (Acetic acid) (Cyclododecane)

IOGENSEN, A.V.

Structural group analysis based on infrared spectra. Khim.i tekhn.  
topl.i masel 7 no.5:16-22 My '62. (MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke  
nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.  
(Hydrocarbons--Spectra)

IOGENSEN, A.V.; KURKCHI, G.A.

Study of the interaction between acetylene and solvents  
using infrared spectra. Opt. i spektr. 13 no.4:480-487  
0 '62. (MIRA 16:3)  
(Acetylene) (Solvents)  
(Spectrum, Infrared)

ZELENSKAYA, L.G.; IOGENSEN, A.V.; ROMANTSOVA, G.I.

Characteristic bands of some chloroalkanes and chloroalkenes.

Izv. AN SSSR.Ser.fiz. 26 no.10:1272-1275 0 '62.

(MIRA 15:10)

(Paraffins—Spectra)

(Olefins—Spectra)

KONTOROVICH, L.M.; LOGANSEN, A.V.; LEVCHENKO, G.T.; SEMINA, G.N.; BOBROVA,  
V.P.; STEPANOVA, V.A.

Chromatographic analysis of acetylenic hydrocarbons. Zav.lab.  
28 no.2:146-148 '62. (MIRA 15:3)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy  
institut azotnoy promyshlennosti i produktov organicheskogo  
sinteza.

(Hydrocarbons) (Chromatographic analysis)

IOGANSEN, A.V.

Quantitative type analysis based on infrared absorption  
spectra (survey). Zav.lab. 28 no.4:433-438 '62. (MIRA 15:5)  
(Chemistry, Analytical—Quantitative)  
(Spectrum analysis)



KURKCHI, G.A.; IQANSEN, A.V.

Gas-chromatographic determination of the solubility of gases  
and vapors in liquids. Dokl.AN SSSR 145 no.5:1085-1088 '62.  
(MIRA 15:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy  
institut azotnoy promyshlennosti i produktov organicheskogo  
sintaza. Predstavleno akademikom M.M.Dubininym.  
(Gases) (Solubility) (Gas chromatography)

IOGENSEN, A.V.; BROUN, E.V.

Structural-group analysis by infrared absorption spectra;  
determination of methyl groups in saturated hydrocarbons and  
alkyl benzenes. Trudy Kom.anal.khim. 13:367-379 '63.

(MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke  
nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.  
(Hydrocarbons—Absorption spectra) (Methyl group)  
(Benzene derivatives)

SIRYUK, A.G.; IOGENSEN, A.V.

Quantitative determination of aromatic rings in heavy  
petroleum products according to the infrared absorption spectrum.  
Trudy Kom.anal.khim. 13:393-399 '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke  
nefti i gaza i polucheniye iskusstvennogo zhidkogo topliva.  
(Aromatic compounds—Absorption spectra) (Petroleum products)

ZELENSKAYA, L.G.; IOGANSEN, A.V.; KURKCHI, G.A.

Measurements with the IKS-12 infrared spectrometer. Zav.lab. 29  
no.4:433-437 '63. (MIRA 16:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut azotnoy  
promyshlennosti i produktov organicheskogo sinteza.  
(Spectrometry)

BROUN, E.V.; IOGENSEN, A.V.

Check for the photometric scale of double-beam infrared apparatus.  
Zav. lab. 29 no.10:1264-1266 '63. (MIRA 16:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut  
azotnoy promyshlennosti i produktov organicheskogo sinteza.

IOGANSEN, A.V.; LITOVCHENKO, G.D.

Conjugation effect in the infrared spectra of nitro compounds. Dokl. AN SSSR 153 no.6:1367-1369 D '63.

(MIRA 17:1)

1. Gosudarstvennyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza. Prestavleno akademikom A.N. Tereninym.

IOGANSEN, A.V.; LITOVCHENKO, G.D.

Effect of intermolecular and vibrational interactions on infrared absorption bands in nitrogoups. Opt. i spektr. 16 no. 4:700-702 Ap '64. (MIRA 17:5)

ICGANSEN, A.V.

~~Use of double-beam spectrophotometers in measuring the integral~~  
infrared band intensity. Opt. i spektr. 16 no.5:813-820 My '64.  
(MIRA 17:9)



"APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000618630008-9

APPROVED FOR RELEASE: 08/10/2001

CIA-RDP86-00513R000618630008-9"

1. The first step is to identify the problem. This involves understanding the situation, gathering information, and defining the problem clearly.

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IOGANSEN, A.V.; LITOVCHENKO, G.D.

Characteristic bands of valence vibrations in infrared absorption spectra of the nitrogroup. Part 1: Experimental data and assignment of bands. Zhur. prikl. spekt. 2 no.3:243-260 Mr '65.  
(MIRA 18:6)

BROUN, E.V.; LOCANSEN, A.V.

Intensity of the  $\gamma_4$  band in benzene gas and solutions. Opt. I  
spektr. 18 no. 43610-613 Ap '65.

(MIRA 1818)

IOGANGEN, A.V.; ZELENSKAYA, L.G.; SEMINA, G.N.; Prinimali uchastnye:  
ABRAMOVA, M.P.; BILYASNIKOVA, I.V.

Composition of the products of the oxidation of cyclohexane.  
Khim. prom. 42 no.9:660-661 S '65. (MIRA 18:9)

IOGANSEN, A.V.

Relation between hydrogen bond energy and the intensity of  
infrared absorption. Dokl. AN SSSR 164 no.3:610-613 S '65.  
(MIRA 18:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy  
institut azotnoy promyshlennosti i produktov organicheskogo  
sinteza. Submitted March 11, 1965.

IOGENSEN, A.V.; LITOVCHENKO, G.D.

Characteristic bands of valence vibrations of the nitro group in infrared absorption. Part 2. Correlation of frequencies and intensities with molecular structure. Zhur. prikl. spekt. 3 no. 6:538-547 D '65 (MIRA 19:10)

1. Submitted December 9, 1964.

LOGANSKY, I.

LADUKHIN, V., samestitel' nachal'nika; LOGANSEN, I., arkhitektor.

Reconstruction of Leningrad's motion-picture theaters. Kinomekhanik no.11:  
30-32 N '53. (MLRA 6:11)

1. Otdel kinofikatsii Gorodakogo upravleniye kul'tury, Leningrad.  
(Leningrad--Moving-picture theaters) (Moving-picture theaters--Leningrad)



IOGENSEN, K.L.

SAKHAROVSKIY, Mikhail Federovich, master-al'freyschik (Leningrad); IOGENSEN,  
K.L., arkhitekter-khudezhnik, dotsent, nauchnyy redaktor; ROZENBERG,  
A.S., redaktor izdatel'stva; PUL'KINA, Ye.A., tekhnicheskiy redaktor.

[The work of a master interior finish painter] Rabota мастера-ал'frei-  
shchika. Leningrad, Gos.izd-vo lit-ry po stroit. i arkhit., 1956. 31 p.  
(MLRA 10:4)

(Decoration and ornament)

21(9)

AUTHORS:

Iogansen, L. V., Rabinovich, M. S.

SOV/56-35-4-31/52

TITLE:

Coherent Radiation of Electrons in the Synchrotron.I  
(Kogerentnoye izlucheniye elektronov v sinkhrotrone .I)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,  
Vol 35, Nr 4, pp 1013 - 1016 (USSR)

ABSTRACT:

In a 100 MeV-synchrotron the electrons radiate within a wide frequency range: From radiofrequencies with wave lengths of the order of the trajectory length up to ultraviolet- or also X-ray radiation. Within the range:  $\lambda \gg$  average distance between the electrons in the bunch radiation is partly coherent. Coherent radiation in the synchrotron depends above all on the phase vibrations of the electrons. Basic experimental investigations of coherent radiation were carried out by A.M.Prokhorov on a 5 MeV synchrotron (Refs 1,2). Rytov ( FIAN-report, 1950) investigated coherent radiation on the assumption that all particles in the bunch perform phase oscillations with

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Coherent Radiation of Electrons in the Synchrotron.I

SOV/56-35-4-31/52

one and the same amplitude. The problem of coherent radiation of the bunch in the case of any frequency distribution with respect to phase oscillations has hitherto not been investigated. A detailed investigation of physical processes and particle losses during the time of acceleration is therefore of interest. The authors first investigated the case of a single (relativistic) electron revolving on a circular orbit ( $r_0$ ) with the angle velocity  $\omega_0$  and performing small harmonic phase vibrations ( $\Omega \ll \omega_0$ ). It holds that  $\phi = \phi \sin \Omega t$ , where  $\phi$  denotes the amplitude of phase vibrations. The potentials of the harmonics and the electron field (Fourier (Fur'ye)) is given, and the distribution of particles with respect to phase vibrations is investigated (Liuville), as well as the case of a steady distribution: Distribution density  $w(\phi, \psi, t) \approx w(\phi)$ . The true distribution in the bunch has hitherto been but little investigated. From experimental amplitude distribution curves for the

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Coherent Radiation of Electrons in the Synchrotron.I

SOV/56-35-4-31/52

synchrotron of the FIAN SSSR (Physics Institute AS USSR) at 250 MeV (Ref 4) data are, however, taken for  $\psi(\psi)$  and  $f(\phi)$ . Finally, the authors investigate the range of wave length, for which radiation is coherent, by means of the form factor for steady distribution, and in the last paragraph non-steady distribution is investigated. The expression derived in this paper by means of the potential of a single-phase modulated electron and of the distribution function of the particles in the bunch for the spectrum of the radiation field potential of the bunch is valid for sufficiently low harmonics for which the radiation is coherent. In conclusion the authors thank A.M. Prokhorov and Yu.M.Ado for valuable discussions and for disclosing experimental data before their publication. There are 4 Soviet references.

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Coherent Radiation of Electrons in the Synchrotron.I

SOV/56-55-4-31/52

ASSOCIATION: Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR  
(Physics Institute imeni P.N.Lebedev of the Academy of  
Sciences USSR), Moskovskiy gosudarstvennyy pedagogicheskiy  
institut (Moscow Pedagogical State Institute)

SUBMITTED: May 21, 1958

Card 4/4

IOGANSEN, L. V. Cand Phys-Math Sci -- (diss) "Coherent radiation and the  
interaction of electrons in <sup>a</sup>synchrotron<sup>a</sup>." Mos, 1959. 8 pp (Mos State Ped  
Inst im V. I. Lenin), 150 copies (KL, 48-59, 113)

-4-

24(5)

AUTHOR: Iogansen, L. V.

SOV/56-36-1-45/62

TITLE: The Quantum Corrections to the Radiation of a Relativistic Rigid Rotator (Kvantovyye popravki k izlucheniyyu relyativiststskogo zhestkogo rotatora)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 1, pp 313-314 (USSR)

ABSTRACT: Calculation of the quantum corrections to the radiation of an electron in a synchrotron is dealt with by several mathematically very complicated Soviet and foreign papers, especially one by A. A. Sokolov et al. (Ref 1). The author of this paper proceeds from the motions of these particles in an axial magnetic field. This warrants a circular motion and weakly focusing forces near the stable orbit. The following is shown by the present paper: it is easy to obtain nearly the same results by completely neglecting excitation of betatron oscillations and considering the electron to be an absolutely rigid rotator. The character of the forces warranting such a rigid focusing is not specialized. A possible interaction of electron spin with the focusing fields is not taken into account. The plane of the orbit with the radius  $a$  is considered

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The Quantum Corrections to the Radiation of a  
Relativistic Rigid Rotator

SOV/56-36-1-45/62

to be an xy-plane, and the center of reference is assumed to be in its center. The Dirac (Dirac) equation for the free azimuthal motion then has the form  
 $(\hbar c/ia) (\sin \varphi \alpha_x - \cos \varphi \alpha_y) \partial \psi / \partial \varphi + (E + \beta mc^2) \psi = 0$ . For the positive eigenvalues of energy one obtains

$$E_l = \hbar \omega_l = \{ (\hbar c/a)^2 l(l+1) + (mc^2)^2 \}^{1/2} \quad (l = 1, 2, \dots).$$

To each  $E_l$  there correspond 2 eigenfunctions which are also the eigenfunctions of the operators of the projections of the total angular momentum on to the axis. The author here investigates the case of a circular motion with the macroscopic radius  $a$  with relativistic velocities. Such a motion is, by the way, quasiclassical. The author in this connection investigates the transitions of the electron from the state  $\psi_l^{(-)}$  to the state  $\psi_{l+1}^{(-)}$ , where  $l+1 = n \ll 1$  is assumed.

A formula is written down for the frequency of the quantum emitted in this transition. The probability of a transition with variation of the projection of the electron spin

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The Quantum Corrections to the Radiation of a  
Relativistic Rigid Rotator

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$(\psi_1(\pm) \rightarrow \psi_1(r))$  is proportional to  $(n/l)^2$  and therefore

only the transitions with conservation of electron polarization are of importance in the approximation under investigation. Next, an expression is given for the intensity of the radiation with the frequency  $\omega_n$  into the solid angle  $d\Omega$ . In the limiting case  $l \rightarrow \infty$  the exact classical formula is obtained, and by integration over the angles one obtains the total efficiency of the  $n$ -th harmonic. In the ultrarelativistic case the total radiation efficiency can be calculated. The author thanks Professor M. S. Rabinovich for valuable advice. There are 3 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut (Moscow State  
Pedagogical Institute)

SUBMITTED: June 25, 1958

Card 3/3

21(9)

AUTHORS:

Iogansen, L. V., Rabinovich, M. S.

SOV/56-37-1-18/64'

TITLE:

Coherent Electron Radiation in a Synchrotron. II  
(Kogerentnoye izlucheniye elektronov v sinkhrotrone. II)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 37, Nr 1(7), pp 118-124 (USSR)

ABSTRACT:

The authors investigated the electromagnetic interaction of electrons in a thin relativistic bunch under coherent radiation in a synchrotron. In the present paper, it is assumed that all particles in the bunch move on coaxial circles at the same linear velocity  $v \sim c$ . Therefore, the betatron vibrations are neglected, and also the instantaneous deviations of the energies of the particles are not considered. This is also justified because in practice the density of the bunch in the synchrotron is much lower than its length. Therefore, the transverse dimensions of the bunch in the first approximation do not enter the expressions for the tangential forces determined in the present paper. Also the interaction of the bunch with the chamber walls, with the poles of the magnet, and

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Coherent Electron Radiation in a Synchrotron. II SOV/56-37-1-18/64

with the other building elements of real accelerators is not considered, and it is assumed that the electrons move in the unlimited free space. In the 4 parts of the present paper, the following factors are calculated: The interaction between 2 charges in the bunch, the action of the bunch on a single electron, the forces for some bunch models, and finally the short-range interaction. The authors thank Academician I. Ye. Tamm for the communication of results of a paper not yet published (Ref 4). There are 1 figure and 6 references, 3 of which are Soviet.

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva Akademii nauk SSSR  
(Institute of Physics imeni P. N. Lebedev of the Academy of Sciences, USSR).  
Moskovskiy gosudarstvennyy pedagogicheskii institut im. V. I. Lenina (Moscow State Pedagogical Institute imeni V. I. Lenin)

Card 2/3

21 (9)

AUTHOR:

Iogansen, L. V.

TITLE:

The Influence of Interaction on the Phase Motion of Electrons in a Synchrotron (Vliyaniye vzaimodeystviya na fazovoye dvizheniye elektronov v sinkhrotrone)

SOV/56-37-1-47/64

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 299 - 300 (USSR)

ABSTRACT:

When calculating electron storage systems (100 Mev,  $N \sim 10^{14}$ ) the electromagnetic interaction forces of electrons in the cluster have hitherto not been taken into account. In the present "Letter to the Editor" the author endeavors to evaluate the influence exercised by these forces upon the phase motion of the electrons, as also the angular dimensions of such a cluster, if the interaction forces are in equilibrium. It is assumed in this connection that the following holds for the angular dimensions:  $\theta_0 \ll 1$  (Ref 1), and that the chamber walls and the magnet do not influence electron interaction. These assumptions are justified for sufficiently small clusters. In 1948, I. Ye. Tamm already investigated the influence of interaction forces on the electron motion in a synchrotron for a special case. In the present paper

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The Influence of Interaction on the Phase Motion of  
Electrons in a Synchrotron

SOV/56-37-1-47/64

several relations are deduced and then discussed for a circular orbit and for the ultrarelativistic case. It was found that taking the interaction forces into account influences the results obtained very considerably. The author thanks M. S. Rabinovich for his valuable advice. There are 2 references, 1 of which is Soviet.

ASSOCIATION:

Moskovskiy gosudarstvennyy pedagogicheskiy institut (Moscow  
Pedagogical Institute)

SUBMITTED:

March 4, 1959

Card 2/2

21-2000  
26.234.0

S/056/60/038/004/020/048  
H006/B056

AUTHORS:

Rabinovich, M. S., Iogansen, L. V.

TITLE:

Coherent Radiation of Electrons in a Synchrotron. III

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 4, pp. 1183 - 1187

TEXT: In earlier papers (Refs. 1,2) the authors already investigated the action of the coherent radiation forces upon the phase motion of electrons in a synchrotron. However, the screening effect of the vacuum chamber walls was not taken into account, and the particle cluster was assumed to move in an unbounded free space. The same questions were dealt with in the present article, but screening by the chamber walls was taken into account. For reasons of simplicity it is assumed that the cluster moves near an unbounded perfectly conducting plane or between two such planes. The image method was found to be well suited for dealing with such a problem. First, tangential ansatzes for the forces acting tangentially and perpendicularly upon an electron are given and discussed. Next, the interaction forces in the electron cluster are investigated, and

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Coherent Radiation of Electrons in a  
Synchrotron. III

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B006/B056

approximation equations for the acting forces are obtained. Fig. 1 shows the dependence of the coherent forces  $f_{\tau \text{ coh}}(\psi, p)$  given by (7) on the azimuth  $\psi$  for a cluster of Gaussian shape. In the maximum this force is of the order of  $Ne^2 p^2 / a_o^2 \cdot 8/3$ . The powers of the forces  $f_{\tau \text{ coh}}(\cdot)$ , given by (5) and those given by (7) are of the order of  $Ne^2 c / a_o^2 \cdot 4/3$  and  $Ne^2 c p^2 / a_o^2 \cdot 8/3$ , respectively. Fig. 2 shows the dependence of the coherent forces  $f_{\tau}$  (in  $Ne^2 / a^2$  units), which act upon a single electron of a square cluster on  $\psi$  for the special case  $\delta_o = \pi/8$ ,  $p = 0.1$ . Herefrom it may be seen that the regions near the cluster ends play the main part. Finally, approximation formulas are given and discussed for the forces acting in the interior of the cluster. The effect produced by the forces (5) and (7) upon the phase motion of the electrons is estimated. The minimum angular dimensions of the cluster due to the forces given by (5) - without the shielding effect of the walls being taken into account - are of the order of  $\delta_o \sim (2\pi Ne / aV)^{3/7}$ , and the analogous quantity taking

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Coherent Radiation of Electrons in a  
Synchrotron. III

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B006/B056

shielding into account due to the forces given by (7) is  
 $\varphi_0 \sim (2\pi N e p^2 / a v)^{3/11}$ . ( $v$  is the effective amplitude of the high-frequency  
 voltage,  $p = b/a \ll 1$ ,  $b$  - distance between the cluster and the screening  
 plane,  $a$  - radius of the particle orbit,  $\varphi_0$  - effective angular  
 dimension of the cluster,  $N$  - number of electrons). There are 2 figures  
 and 4 references: 2 Soviet and 2 US.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR  
 (Institute of Physics imeni P. N. Lebedev of the Academy of  
 Sciences, USSR)

SUBMITTED: September 30, 1959

Card 3/3



IOGENSEN, L.V.

Role of limiting the dimensions of resonance filters with total  
internal reflection. Opt.1 spektr. 11 no.4:542-546 0 '61.  
(MIRA 14:10)

(Light filters)

IOGANSEN, L.V. (Moskva)

\*Fiftieth anniversary of the discovery of the atomic nucleus.

Fiz. v shkole 21 no.1:100-101 JAN '61.

(MIRA 14:9)

(Nuclei, Atomic)

25203

S/056/61/040/006/024/031

B108/B209

24.1200

AUTHOR: Logansen, L. V.

TITLE: Resonance diffraction of waves in an inhomogeneous sandwich-type medium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 6, 1961, 1838-1843

TEXT: The author intends to formulate basic and general laws of resonance diffraction. For the sake of simplicity, he considers only scalar waves in a semiinfinite resonance system. The equation of a scalar harmonic wave reads as follows:  $\Delta \varphi(\vec{r}) + k^2 \varphi(\vec{r}) = 0$  (2), where  $k^2 = (n\omega/c)^2$ . The boundary conditions for the boundary of two media (plane  $z=0$ ) are the following:  $\partial \varphi_1 / \partial t = \partial \varphi_2 / \partial t$ ,  $\partial \varphi_1 / \partial z = \partial \varphi_2 / \partial z$  (3). The waves are assumed to hit the boundary from the  $xz$ -plane. The sandwich medium occupies the semi-space  $x > 0$ . In the following, the author uses the approximate solutions of the general scalar wave equation  $\Delta \varphi - (n/c)^2 \varphi = 0$  (1) which

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S/056/61/040/006/024/031

B108/B209

Resonance diffraction of waves...

have been taken from Ref. 3 (L. V. Iogansen, ZhTF (in print)). It is shown that total internal reflection occurs when the waves from medium I in the domain  $z < 0$  fall upon medium II in the domain  $z > 0$ . The author discusses a resonance system consisting of four layers, of which numbers II and IV have a low refractive index but I and III a high one. The waves are assumed to strike the media at such an angle that total reflection occurs from the plane  $P_{12}$  and  $P_{34}$  (see Fig.). Penetration of waves through layer II is due to its small thickness  $d_1$ . The transfer of energy into layer III is of resonance character and depends on the thickness,  $d_2$ , of layer III (resonator). When resonance conditions are fulfilled, the amplitude of the wave in resonator III will rapidly increase, provided the system is unbounded. If there are boundaries, this resonance accumulation of waves will take place in a certain region bordering the boundary, i.e., a peculiar region of resonance diffraction having a characteristic length will arise. The resonance conditions, which are periodic across the thickness of the resonator,  $d_2$ , have the following approximate form:

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$\tan(k'_z d_2)_{\text{res}} = -k'_z(q_z + q'_z)/(q_z q'_z - k_z'^2) \quad (9)$ , where  $(k_x^2 + k_z'^2) = (n_2 \omega/c)^2$

and  $(k_x^2 - q_z^2) = (n_1 \omega/c)^2$ . For the case of exact resonance, the wave amplitudes in resonator III in the region  $x > 0$  are equal to

$$A_{P_{23}}(x) = |B_{P_{23}}(x)| = \left[ \sqrt{(q_z^2 + k_z^2)(q_z^2 + k_z'^2)/2q_z k_z'} \right] \exp(q_z d_1) (1 - e^{-x/l_0}) |A_I| \quad (11)$$

and the amplitude of the wave reflected from the first interface is equal to  $|B_{P_{12}}(x)| = |1 - 2e^{-x/l_0}| \cdot |A_I| \quad (12)$ , where the characteristic

length of resonance diffraction is given by

$l_0 = (k_x/k_z) \left[ (q_z^2 + k_z^2)(q_z^2 + k_z'^2)/2q_z k_z' \right]^2 \exp(2q_z d_1) (d_2 + 1/q_z + 1/q_z')$  /  
 (13), which, for an infinite system in the region  $x \gg l_0$  is found in the following form:

$$l_0 = [ |A_{P_{23}}(\infty)|^2 / |A_I|^2 ] (d_2 + 1/q_z + 1/q_z') \tan \alpha \quad (15).$$

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Mention is made of V. L. Ginzburg. There are 1 figure and 4 references:  
3 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: January 19, 1961

Card 4/5

S/051/62/012/002/019/020  
E032/E514

24.3200

AUTHOR: Iogansen, L. V.

TITLE: A total internal reflection resonance-filter of limited size

PERIODICAL: Optika i spektroskopiya, v.12, no.2, 1962, 318-326

TEXT: In previous papers (Ref.1: Opt. i spektr., 11, 542, 1961; Ref.2: ZhTF, 32, No.4, 1962; Ref.3: ZhETF, 40, 1838, 1961) the author showed that total internal reflection filters exhibit a peculiar form of resonance which is associated with the presence of reflecting boundaries and that previous theories which do not take into account the presence of boundaries cannot be used in practice. This phenomenon is important not only in optical total internal reflection filters but in any plane-layered systems in which the propagation of electromagnetic waves is associated with the resonance effect. The resonance effect always arises when the waves are incident obliquely on a plane-parallel system in which resonance accumulation of energy takes place. The resonance diffraction effect should occur in interference filters, Fabry-Perot etalons and so on. The effect has not been

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A total internal reflection ...

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noticed because it is largely masked by absorption effects and imperfections in the system. It is emphasized that this effect has nothing in common with the normal diffraction effect due to the limited aperture of the system. In the present paper the author extends the analysis given in his previous three papers and gives a detailed theory of the characteristics of an arbitrary finite resonance filter with total internal reflection. Formulae are derived for the amplitudes of waves transmitted and reflected by the filter, for the local and integral transparency of the filter at the maximum of the transmission band and for the local and integral reflection coefficient and the energy stored by the filter. The form and the half-width of the local and integral transmission band are also determined. The calculations refer to the case of plane-parallel waves with the electric vector parallel to the reflecting layers. The paper is entirely theoretical and no numerical experimental results are reported. There is 1 figure.

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SUBMITTED: March 2, 1961

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IOGENSEN, L.V.

Totally reflecting limited resonance filter. Part 2. Opt.1 spektr.  
13 no.2:266-269 Ag '62. (MIRA 15:11)  
(Light filters)

9.2571  
9.3700

37058  
S/057/62/032/004/004/017  
B125/B108

AUTHOR:

Iogansen, L. V.

TITLE:

Theory of electromagnetic resonance systems with internal total reflection

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, v. 32, no. 4, 1962, 406-418

TEXT: The passage of electromagnetic waves through systems of dielectric plane layers (including thin, totally reflecting intermediate layers) is considerably affected by the geometrical dimensions of the system. The theory of A. F. Turner (J. Phys. et Rad., 11, 444, 1950), which does not consider the effect of the system boundaries, holds only asymptotically for infinite systems. The theory of the present author is free from such shortcomings and permits the calculation of a resonance condenser with internal total reflection. The author considers steady oscillations in nonmagnetic media ( $\mu = 1$ ) with s-polarization, i.e. the electrical vector lies in the separating plane. The relations  $A + B = F + G$  (2.8) and  $A - B = i(q_z/k_z)(F - G)$  (2.9) between the complex amplitudes A, B and F, G, on both sides of the separating plane determine the coefficients of Card 1/7 4

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permeability and reflection. For a slowly changing amplitude, the equation  $A(x,z) = A_0(x,z) \exp[-i(k_x x + k_z z)]$  yields the approximate solution  $A_0(x,z) = f(x - (k_x/k_z)z)$  (2.13), where  $f$  is an arbitrary function. In this case, the "orthogonality" conditions

$$A_1 = sA \left( x - \frac{k_z}{k_x} z \right) \exp[i(\omega t - k_x x - k_z z)], \quad (2.14) \text{ and}$$

$$A_2 = sB \left( x + \frac{k_z}{k_x} z \right) \exp[i(\omega t - k_x x + k_z z)], \quad (2.15)$$

$$A_3 = sF \left( x + i \frac{k_z}{q_x} z \right) \exp[i(\omega t - k_x x - i q_x z)],$$

$$A_4 = sG \left( x - i \frac{k_z}{q_x} z \right) \exp[i(\omega t - k_x x + i q_x z)].$$

hold referring to planes in which amplitudes and phases are constant. The approximate relations

$$A = \frac{1}{2} \left( 1 + i \frac{q_x}{k_x} \right) F + \frac{1}{2} \left( 1 - i \frac{q_x}{k_x} \right) G - \frac{1}{2} \frac{k_z}{q_x k_x} \left( 1 + \frac{q_x^2}{k_x^2} \right) (F - G), \quad (2.18) \text{ and}$$

$$B = \frac{1}{2} \left( 1 - i \frac{q_x}{k_x} \right) F + \frac{1}{2} \left( 1 + i \frac{q_x}{k_x} \right) G + \frac{1}{2} \frac{k_z}{q_x k_x} \left( 1 + \frac{q_x^2}{k_x^2} \right) (F - G),$$

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$$\left. \begin{aligned} F &= \frac{1}{2} \left( 1 - i \frac{k_z}{q_z} \right) A + \frac{1}{2} \left( 1 + i \frac{k_z}{q_z} \right) B - \frac{1}{2} \frac{k_z}{q_z k_z} \left( 1 + \frac{k_z^2}{q_z^2} \right) (A' - B') \\ G &= \frac{1}{2} \left( 1 + i \frac{k_z}{q_z} \right) A + \frac{1}{2} \left( 1 - i \frac{k_z}{q_z} \right) B + \frac{1}{2} \frac{k_z}{q_z k_z} \left( 1 + \frac{k_z^2}{q_z^2} \right) (A' - B') \end{aligned} \right\} \quad (2.19)$$

hold for the slowly changing, complex wave amplitudes. The approximate resonance condition for semibounded resonance condensers (Fig. 2) is

$$\operatorname{tg}(k'_z d_2)_{\text{res}} = - \frac{k'_z (q_z + q'_z)}{(q_z q'_z - k_z'^2)} \quad (3.5).$$

Exact resonance, however, does not appear with (3.5) and  $\varepsilon = 0$  ( $\varepsilon = (k'_z d_2) - (k'_z d_2)_{\text{res}}$ ), but with

$$\varepsilon_0 = - \frac{(q_z^2 - k_z'^2)}{(q_z^2 + k_z'^2)} \frac{2q_z k'_z}{(q_z^2 + k_z'^2)} \exp(-2q_z d_2). \quad (3.12).$$

If electromagnetic waves polarized in the plane of incidence propagate obliquely in a plasma with plane layers with continuously variable dielectric constant, the energy "seeps through" and concentrates in a

Theory of electromagnetic ...

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narrow range behind the totally reflecting boundary. The complex wave formulas derived in the present paper are formulated also for bounded condensers. The required properties of these systems can only be realized with dimensions which practically cannot be achieved. Systems with the usual, poorly transparent reflecting layers do not show these shortcomings. Totally reflecting systems with a not too high resolving power can be used for broad beams if metallic reflecting layers cannot be applied. E. V. Shpol'skiy is thanked for his interest in the present study, and V. L. Ginzburg for a discussion. There are 3 figures and 7 references: 3 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: P. Leurgans, A. F. Turner. J. Opt. Soc. Amer., 37, 983, 1947; H. D. Polster, J. Opt. Soc. Amer., 39, 1038, 1949; A. F. Turner. J. Phys. et Rad., 11, 444, 1950; A. E. Gee, H. D. Polster. J. Opt. Soc. Amer., 39, 1044, 1949.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut im. V. I. Lenina (Moscow State Pedagogical Institute imeni V. I. Lenin)

SUBMITTED: November 14, 1960 (initially), May 3, 1961 (after revision)

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IOGENSEN, L.V.

Resonance diffraction of elastic waves in plane layered media with total internal reflection. Izv. vys. ucheb. zav.; radiofiz. 6 no.5:958-963 '63. (MIRA 16:12)

1. Moskovskiy filial Kiyevskogo instituta grazhdanskogo vozdušnogo flota.

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S/051/63/014/001/022/031  
E039/E120

9.5320

AUTHOR: Iogansen, L.V.

TITLE: A finite totally reflecting resonance filter. III

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 131-136

TEXT: This paper is a continuation of previous work (Optika i spektr., v.12, 1962, \*318, and v.13, 1962, \*266) on the calculation of the characteristics of a totally reflecting resonance filter extended to take into account finite size and absorption of electromagnetic waves in the material of the filter. The conditions necessary for securing a highly transparent filter in this case are given by  $L \gg l_0$  and  $\eta \ll 1$ , where  $L$  is the linear dimension of the filter along the  $x$  axis ( $l_0$  not defined) and  $\eta$  is the ratio of the energy absorbed inside the filter to the energy incident on the filter from outside. The transparency is then given by the approximate formula:

$$\bar{T}(L, \delta) = 1 - 2\eta - \frac{3}{2} \frac{l_0}{L} \quad (3.17)$$

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A finite totally reflecting...

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where  $\bar{T}$  is the transparency, and  $\delta = \chi_2/n_2$  where  $\chi_2$  is the absorption index and  $n_2$  the refractive index of the filter material. The condition  $L \gg l_0$  imposes a limit on the geometrical size of the filter, and the condition  $\eta \leq 1$  imposes a limit on the selection of material from which the filter can be made. Note that analogous conditions must be fulfilled for a Fabry Perot interferometer made in the form of a plane-parallel transparent resonance plate with semi-transparent mirror coatings on both sides.

SUBMITTED: January 6, 1962

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IOGANSEN, L.V., (Moskva)

Use of complete internal reflection of waves. Fiz.v shkole 23  
no.1:6-11 Ja-F '63. (MIRA 16:4)

(Reflection (Optics))

JOGANSEN, L.V.

44938

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S/048/63/027/001/011/043  
B163/B180

AUTHOR: Jogansen, L. V.

TITLE: Spectral and energetic characteristics of resonance filters with total internal reflection, taking account of their geometrical dimensions

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27, no. 1, 1963, 24 - 26

TEXT: The transmission and reflection characteristics are calculated for the total reflection filter proposed by Leurgans and Turner. It had been predicted that the pass band could be narrowed to any degree, with complete transparency in the band maximum, simply by increasing the thickness of the two total reflecting layers. This was not confirmed in the experiment nor is Turner's theory applicable, which attributes this discrepancy to imperfections in the total reflecting layers. Here it is shown that the problem cannot be treated correctly by a one-dimensional approximation and that energy from the incident radiation is stored in the resonator layer between the two total reflecting layers. If a coordinate

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Spectral and energetic ...

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system is used in which the layers are perpendicular to the  $z$  - direction, and the incident-wave vector lies in the  $x - z$  - plane, the filter properties depend on the  $x$  - coordinate, and one must distinguish between the local transmission coefficient  $T(x)$ , reflection coefficient  $R(x)$ , and energy accumulation coefficient  $C(x)$  on one side, and their integral values on the other. These are obtained by averaging the local coefficients over the filter dimension in  $x$  direction. The shape of the local pass band varies slowly with  $x$ , its half-widths decreasing with increasing  $x$ . The new theory is in good agreement with experimental results of Rozenberg (Optika tonkosloynykh pokrytiy, (Optics of thin-film coatings), Fizmatgiz, M., 1958). This paper was presented at the 14th Conference on Spectroscopy in Gor'kiy, July 5-12, 1961. There is 1 figure.

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IOGANSEN, L.V.

Theory of resonance electromagnetic systems with total internal  
reflection. Part 2. Zhur. ~~tekh.~~ fiz. 33 no.11:1323-1327 N '63.  
(MIRA 16:12)